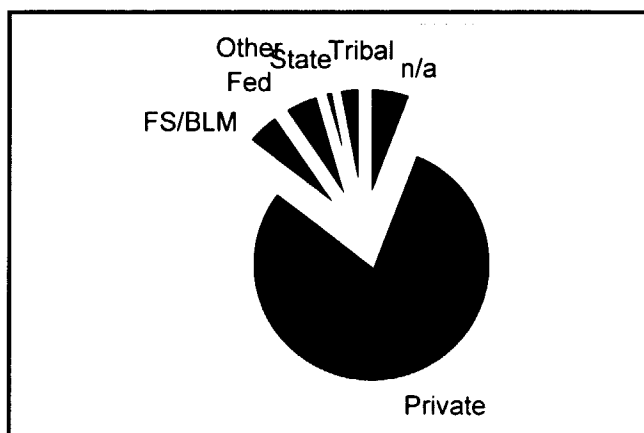


Table V-9: BLM Districts with Bonneville Transmission Facilities

BLM Districts and Bonneville Transmission Lines	
State	District
Idaho	Lower Snake River
	Upper Snake River
Washington	Upper Columbia-Salmon/Clearwater
	Spokane
Oregon	Coos Bay **
	Medford **
	Salem **
	Lakeview**
	Prineville
	Eugene **
California	Roseburg **
	Burns
Montana	Vale
	Susanville (Substation)
Montana	Butte

** included in regulations from Land Management Planning Documents Within the Range of the Northern Spotted Owl (USDA/USFS and USDO/BLM, 1994b).

Figure V-7: Land Ownership by Percentage around Substation Property



Bonneville's facilities also cross Tribal lands, including nine Indian reservations, as follows:

- Flathead Indian Reservation of the Confederated Salish and Kootenai Tribes,
- Yakama Nation,
- Nez Perce Tribe,
- Nisqually Indian Tribe,
- Kootenai Tribe of Idaho
- Confederated Tribes of the Colville Indian Reservation,

Tribal Lands

BLM - and USFS - managed Lands

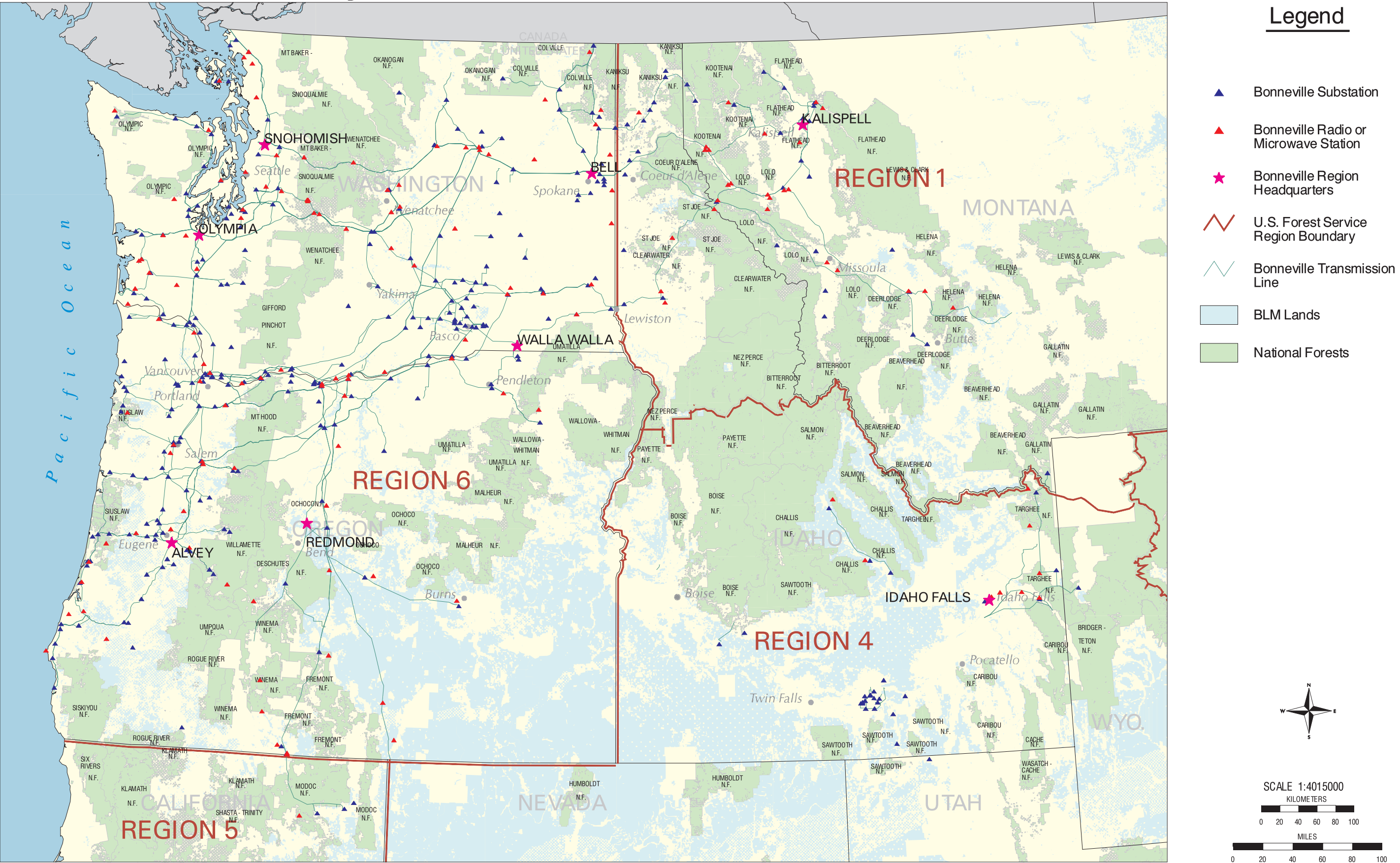


Figure V-6 BLM - & USFS - managed Lands

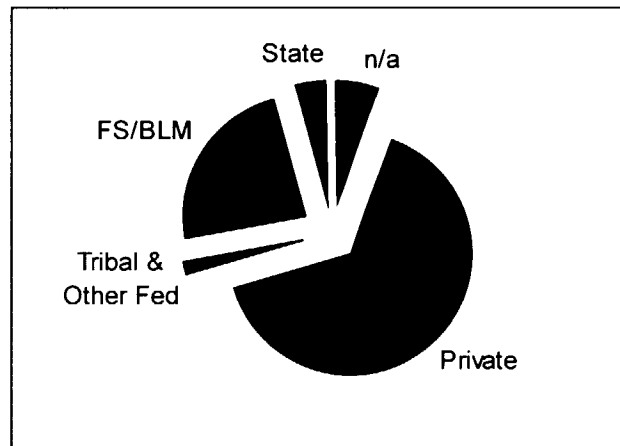
- Confederated Tribes of the Warm Springs Indian Reservation,
- Umatilla Indian Reservation, and
- Puyallup Reservation.

About 357 km (222 miles) of transmission corridor cross reservations. There are 10 Bonneville substations (3%) and 1 microwave tower (less than 1%) located on Tribal land.

Tribal reservations are shown on Figure V-4, after page 134.

Most of these Tribal Reservations have plans that include guidelines for vegetation management. Also, Native American Tribes hold and exercise legal rights to activities and resources both within and beyond Reservation boundaries. These rights notably include fishing, hunting, gathering wild plant materials, and religious practices.

Figure V-8: Land Ownership by Percentage around Radio/Microwave Stations



City, County, and State Lands

Bonneville's service area crosses many jurisdictions, including cities, counties, and states, that have ordinances and plans defining land use. As a Federal agency, Bonneville does not apply for local permits from state, county or city governments unless a local government has been designated as the regulator for a Federal law. Bonneville tries to consider consistency with state and local ordinances, plans, and policies associated with adjacent land uses.

Cultural and Historical Resources

Cultural and historic resources can be generally categorized into three groups:

- 1) historic sites, including historic architecture, engineering and archeological sites;
- 2) Native American archeological sites; and
- 3) traditional cultural properties.

Most identified cultural resources in the Columbia River Basin are archeological sites such as campsites, housepit villages, rockshelters, rock art (petroglyphs and pictographs), lithic (stone) quarries and workshops, burial grounds and cemeteries and isolated rock cairns, pits and alignments. Archeological sites are valued for:

- information they contribute to understanding past events and cultures,
- public recreational and educational interest, and
- their significance as part of the heritage of contemporary Native American cultures.

Sites of historic significance relate to early Euro-American exploration, the fur trade, military history, mining, navigation, agriculture, and early settlement.

Native American traditional cultural properties include a broad range of features from the natural environment and the sacred world, such as distinctive shapes in the landscape, traditional use plants and animals (including game animals, livestock, and food and medicinal plants), ceremonial sites, and places of spiritual renewal and guidance.

These cultural resources are found throughout the Pacific Northwest, along transmission-line corridors and next to other electric facilities that cross Tribal reservation, Federally managed, and private lands.

Public Health and Safety

Transmission facilities provide electricity for heating, lighting and other services essential for public health and safety. Contact with the electric equipment can injure people and cause property damage.

Managing vegetation around electric transmission facilities keeps the electricity from flashing to ground or other objects. This same vegetation management can potentially harm humans. Exposure to herbicides, use of sharp tools, machinery and heavy equipment, and burning slash piles can injure people.

National Electrical Safety Code

Bonneville's vegetation management program is based on portions of the National Electrical Safety Code 1997 Edition (NESC, 1997). In general, the NESC requires tree trimming and removal to prevent "... grounding of the circuit through the tree." Electric contact between a tree and an energized conductor can occur even though the two do not actually touch. In the case of high-voltage lines, electricity will arc across an air gap. The distance varies with the voltage at which the line is operated. Bonneville has established minimum distances that a tree can be to a transmission line; the NESC designates how close a worker can come to energized lines. (Please see **Appendix E** for more information on this subject.)

The NESC specifies factors that should be considered if a tree is to be removed or trimmed: tree growth, movement of the tree and conductors in wind, voltage, and sagging of the conductor at high temperatures.

Equipment Use

Workers (and potentially the public) are at risk of physical harm resulting from tree felling and topping, use of sharp tools, driving on unimproved roads, and work conducted near high-voltage lines and transformers.

Herbicides

All herbicides sold or distributed in the United States must be registered by the Environmental Protection Agency (EPA). This means that the EPA must conclude that the particular agent in question can be used without posing unreasonable risks to people or the environment, based on scientific evidence.

Current law also mandates that older registered herbicides be reregistered based on advances in scientific knowledge. EPA lists recently reregistered herbicides in a Reregistration Eligibility Decision (RED).

Pertinent facts about herbicides, including controls for proper use, safety requirements, toxicity data, and application restrictions are summarized in EPA RED fact sheets. (See **Appendix H.**) EPA also imposes these regulations by including them on container labels to direct the proper use of a herbicide. It is illegal *not* to follow label instructions and restrictions.

Another potential issue related to public health and safety and vegetation management is smoke from burn piles. Bonneville has two burning techniques: we sometimes use a burner to kill weeds in substations and/or we burn vegetative debris piles created from right-of-way vegetation maintenance. For safety and reliability reasons, burn piles are located away the transmission line unless the line is de-energized.

Smoke can reduce local air quality and can cause health concerns for people—particularly people with respiratory problems—who live near the place where burning is occurring.

Smoke/Fire

Visual Resources

Visual quality varies tremendously throughout the Pacific Northwest: from forests, mountains, ocean views, and rolling hills to picturesque and cosmopolitan cities. For the most part, Bonneville facilities and rights-of-way have been part of the visual landscape for many years and, in some cases, decades.

Bonneville 's Vegetation Management Program most affects visual quality where vegetation within maintained rights-of-way contrasts with surrounding vegetation, primarily forested areas. Areas where Bonneville transmission lines cross forested areas include the Olympics, Cascades, Northern Rockies, and Coast Range. In such areas, maintained rights-of-way can create a visibly sharp, linear edge between forest and right-of-way.

Towers are also typically visible within forested areas, although trees can often block or soften the views of most towers, leaving those exposed on hill tops or within valley gaps as the most visible. In non-forested areas, the towers exert much more visual presence than does the maintained vegetation beneath them.

Major factors that determine corridor visibility include existing soils, vegetation, the view from viewpoints, adjacent settings, and contrasts between surfaces (vegetation and exposed soils) inside and outside the corridor.

Bonneville electric yards can be very visible, with their structures, light colored gravel, fencing, and lighting. In residential neighborhoods, visual screening becomes an important management consideration. Because typical shade trees near substations can cause safety and reliability problems, Bonneville has often “visually softened” some of these facilities with fencing, low-growing vegetation, and slow-growing trees.

Air Quality

Within Bonneville’s service area, many airsheds either do not currently or have not in the past met Federal air quality standards. Those that currently do not meet the standards are called “nonattainment areas.” Those areas listed as nonattainment are either taking measures to reduce air pollution or are gathering better data, so that they can be reclassified as “maintenance areas.” If they do not receive redesignation by the Federal government’s deadline (varies with designation status), the Federal government withholds highway funds.

The status of **nonattainment** designations is constantly being reviewed by state authorities with the hope that those areas will achieve redesignation as maintenance areas—thus lifting the strict standards imposed on them. Most of the nonattainment areas in the Northwest are scheduled for redesignation in the near future. A few that will probably not be redesignated in the near future include Pocatello, ID (particulates), and Spokane and Yakima, WA (both: carbon monoxide).

Many airsheds presently listed as nonattainment are eligible for redesignation to maintenance areas because they have not exceeded the standards for at least 3 years. Bonneville will treat these airsheds as nonattainment areas, but will watch for changes in designation. These areas include the following: Montana (Butte, Columbia Falls, Kalispell/Whitefish and Flathead County, Flathead Indian Reservation (Poulson/Ronan), Libby, Missoula, and Thompson Falls); Idaho (Boise, Pinehurst and Shoshone County, and Sandpoint), and Oregon (Eugene/Springfield and Lane County, Grants Pass, Klamath Falls, La Grande, Lakeview, Medford, Oakridge, and Salem). “Maintenance areas” include Eugene and Portland (OR), Vancouver (WA), and Seattle-Tacoma-Everett (WA).

Socioeconomics

Population centers range from small rural communities to major metropolitan areas, with much of the population occurring within the urban centers of the Puget Sound and Willamette Valley regions. McGinnis and Christensen (1994, citing U.S. Bureau of Census 1990 data, 1991) report that counties in the Interior Columbia River Basin had a 1990 population of 2.9 million. As a comparison, 6.3 million people reside in western Oregon and Washington. Washington counties comprise 38% of the population; southern Idaho counties, 27%; Oregon counties, 12%; Montana counties, 11%; and northern Idaho counties, 7% (counties in the Interior Columbia River Basin in Wyoming, Utah, and Nevada comprise the remaining 5% of the study area population). Within the interior Columbia Basin, the most populated county in 1990 was Spokane, Washington (361,364); the least was Camas, Idaho (McGinnis and Christensen 1994).

Major resource-based economies include crop, forage, and timber production. Within urban centers, more industrial- and service-based economies exist, including manufacturing, production, and retail.

Over the past 13 years, the Pacific Northwest has evolved from a resource-based economy to a more diversified economy with growing trade and service sectors. The manufacturing share of the regional nonfarm employment was 15.5% in 1993. Resource based manufacturing made up 24.2% of the manufacturing employment and high technology industries' (aerospace and electronics) share was 38.6%.

The lumber and wood products industry held 2.6% of the total regional employment in 1993. Food processing was 2.0%, while transportation equipment was 3.2% (1993). Aluminum production is economically important to the region, but its employment is relatively small; it had a 0.5-percent share of total employment in 1993. Employment in wholesale and retail trade was 24.7% in 1993, while employment in the services sector was 24.9%.

Bonneville's system supplies electric power for many municipalities and industries. Industrial customers such as aluminum plants or high-tech manufacturers count on very reliable electric service. Unexpected electric interruptions can cause negative economic repercussions from down-time, re-setting equipment, and lost revenues.

Economic Conditions

The affected area, in terms of potential economic effects, can extend beyond the Pacific Northwest. Power on Bonneville's transmission system can flow north to Canada or south to California. Because transmission systems are linked together, the same power can end up being used in New Mexico, Arizona, Texas, Utah, or Nevada. Therefore, when power is interrupted in one place, a chain of interruptions can occur several states away. An example is the August 10, 1996, power outage referenced in Chapter I: it caused power outages in ten states, interrupting electric service for a period of time from several minutes to nine hours for 7-½ million customers (residents and businesses).